

Dec. 4, 1962

A. P. KRUEGER
LABEL DISPENSER

3,066,881

Filed Sept. 25, 1959

3 Sheets-Sheet 1

Fig. 1.

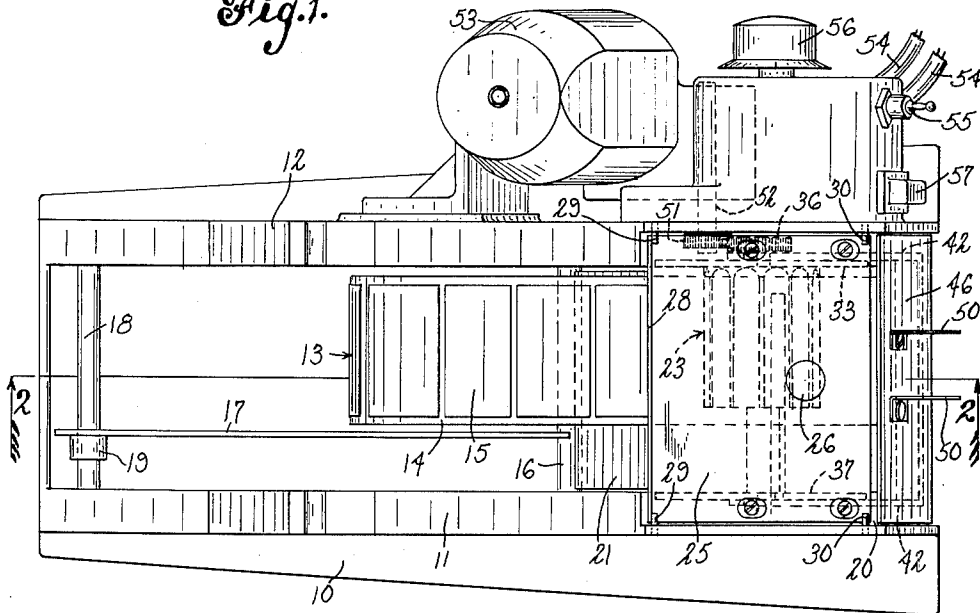
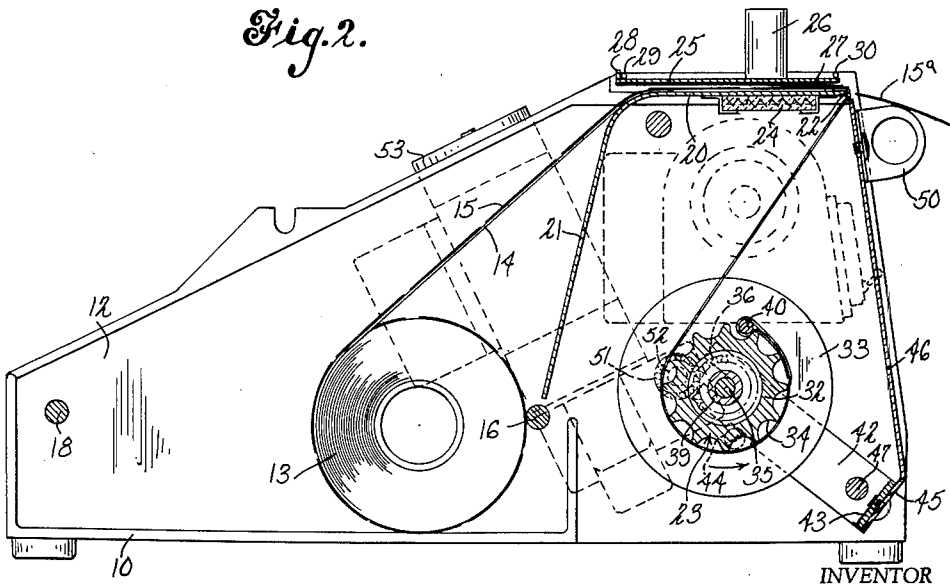


Fig. 2.



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Fig. 3.

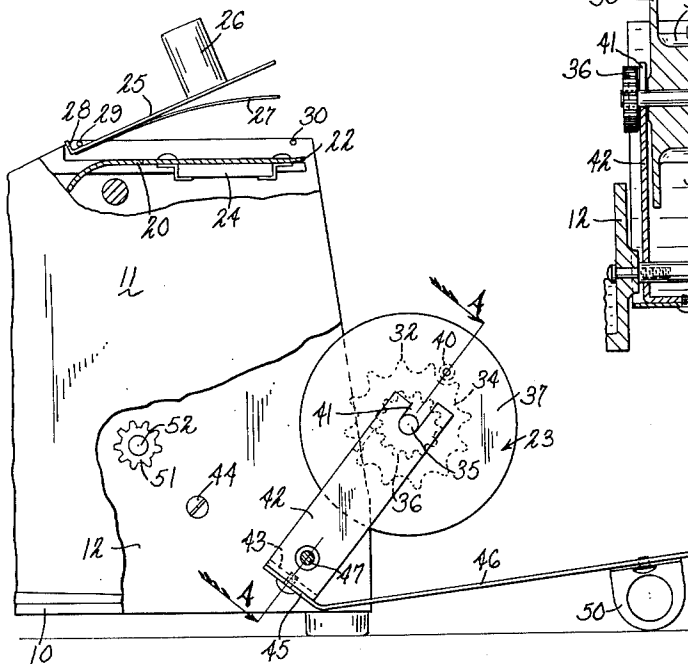


Fig. 4.

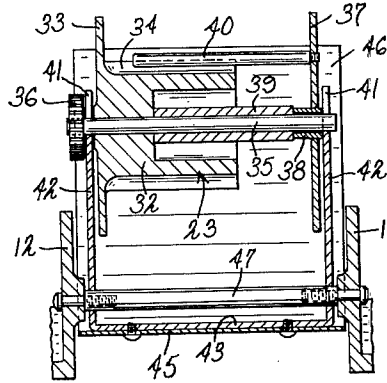


Fig. 5.

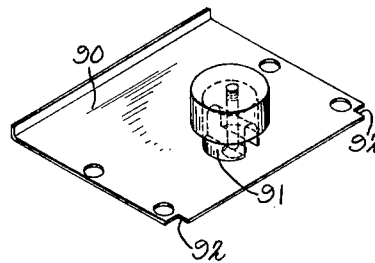
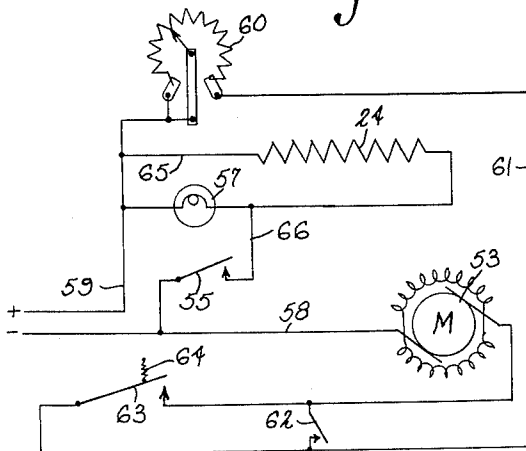


Fig. 6.



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Fig. 7.

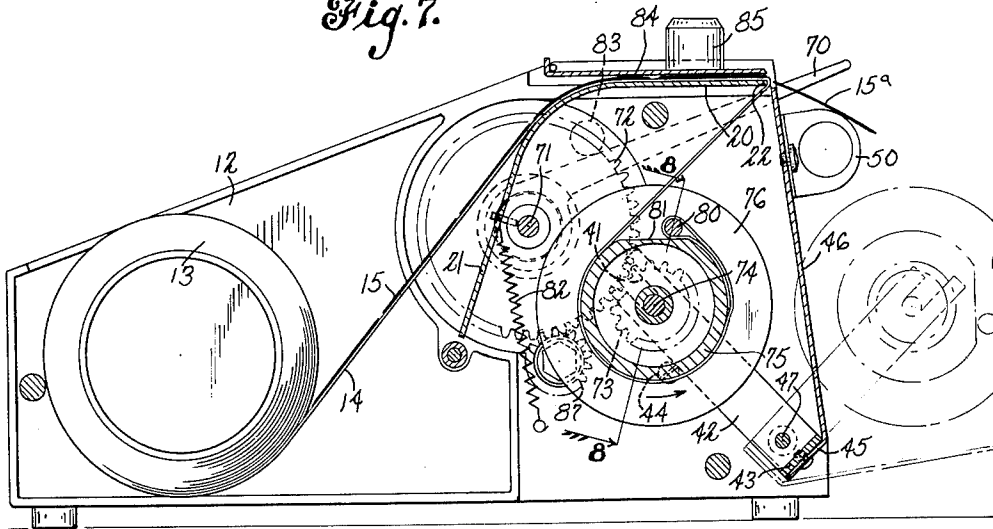


Fig. 8.

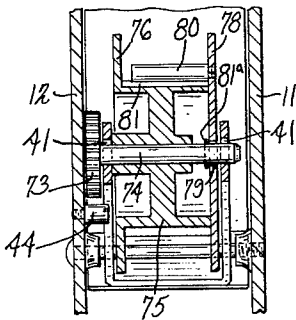
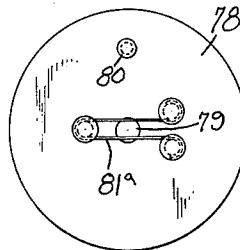


Fig. 9.



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3,066,881

LABEL DISPENSER

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 3 Claims. (Cl. 242-55.53)

This invention relates to a label-dispensing device and more particularly a device for dispensing labels which are carried upon a web or strip which is usually supplied in rolled form.

The labels are provided on one side with an adhesive, usually a pressure-sensitive adhesive, and the web or strip upon which the labels are carried is provided with a surface to which the adhesive will lightly adhere but from which they may be readily separated by bending the web over a sharp edge.

Devices of this character usually provide means for holding a supply roll of the labels mounted upon the carrier web, a member providing a sharp edge over which the web is drawn so that the labels will be detached from it and means to feed or draw the web over such edge. In some instances the carrier web is merely allowed to feed out of the machine where it may be torn off at suitable intervals, and in such case feed rollers are provided to draw the web through the machine.

In the present device, however, a take-up roll is provided upon which the web is wound after the labels have been separated from it and a driving force is applied to this take-up roll to draw the web and the labels carried thereby from the supply roll. It will be obvious that at the beginning of the operation the end of the carrier web must be secured in some way to the take-up roll so that the latter may exert a pulling force thereon and, as the carrier web continually builds up upon this roll, it will be necessary from time to time to remove the web therefrom.

To this end the take-up rewind drum or roll may be readily removed from the machine and consists of two parts which are quickly detachable by a relative axial movement so that the windings of the web thereon may be readily removed without having to unwind the same. A very simple connection between the two parts of the drum is provided which will cause them to turn together and also lock the end of the web in place.

In the present instance the rewind drum is carried by a pair of pivoted arms connected to a swinging closure member so that by swinging this member forwardly to an open position, the drum or take-up roll may be exposed for detachment of the parts and removal of the web therefrom. This drum is driven by a pinion mounted on the shaft thereof, which pinion is engaged by a driving gear which may be actuated either manually or by an electric motor. The arrangement of the gear and pinion is such that the torque exerted by the driving gear tends to hold the cover in closed position and the gear and pinion in mesh without any additional means for this purpose.

In addition where an electric motor is employed means is provided for controlling the speed of the motor which may be in the form of an adjustable rheostat placed in the motor circuit and adjustable to increase or decrease the speed of the motor. It will be obvious that the carrier web will build up upon the take-up roll and, if the latter is rotated at a constant rotational speed, the web will be drawn off more rapidly when it has accumulated on the roll than in the beginning of an operation. Therefore, adjustment of the speed of the motor may be made to maintain the speed of the web substantially constant.

One object of the present invention is to provide new

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and improved means for dispensing labels adhesively mounted upon a carrier web.

Still another object of the invention is the provision of a label dispenser of the character described in which the web which carries the labels may be drawn from the supply roll by a take-up roll so constructed that the label-free web may be readily removed therefrom.

Still another object of the invention is the provision of a label dispenser of the character described wherein the take-up roll or drum consists of two separable parts which may be readily removed from the machine and detached by means of a relative axial movement so that the windings of the web thereon may be readily removed from the drum.

Still another object of the invention is to provide new and improved means for driving the take-up roll or drum by a pinion and drive gear, the teeth of which are in mesh and which are so arranged that the driving torque will maintain them in engagement and maintain in closed position a cover by which the take-up roll is carried.

To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings:

FIG. 1 is a top plan view of a label dispenser embodying my invention;

FIG. 2 is a sectional view on line 2-2 of FIG. 1;

FIG. 3 is a side elevational view of the forward portion of the dispenser showing the cover in open position;

FIG. 4 is a sectional view on line 4-4 of FIG. 3;

FIG. 5 is a perspective view of a presser member of modified form to supply tension to the web;

FIG. 6 shows one form of wiring diagram for the motor and associated parts;

FIG. 7 is a view similar to FIG. 2 showing a modified form of my invention wherein the take-up roll or drum is driven by a manually operated lever;

FIG. 8 is a sectional view on line 8-8 of FIG. 7; and

FIG. 9 is an elevational view of one of the flange disks of the take-up drum.

To illustrate one embodiment of the invention there is shown in the drawings a frame or supporting structure comprising a base 10 and spaced upright side members 11 and 12. Between these members is provided a chamber or well within which the supply roll 13 of labels may rest. This roll comprises a carrier web 14 upon which are supported spaced labels 15, it being understood that the under surfaces of these labels are provided with adhesive such as pressure-sensitive adhesive which lightly adheres to the surface of the web but which may strongly adhere to articles to which it may be applied.

The supply roll 13 may rest against a transverse rod support 16 at its forward side and may be held in place laterally of the frame by a guide plate 17 adjustable in a lateral direction upon a rod 18. The plate may be provided with a hub 19 slidable upon the rod.

The web with the labels thereon is drawn over the table 20, which may be the horizontal portion of a guide plate 21, and bent sharply downwardly over the forward edge 22 of this plate to cause the labels to be separated and dispensed from the carrier web, as shown at 15^a (FIG. 2). The free end of the carrier web is secured to a positively driven take-up roll or drum designated generally by the numeral 23 which supplies the force for drawing the labels through the machine from the supply roll 13.

Below the table 20 may be an electric heating element 24 to supply heat to the adhesive upon the labels if this is desired and a presser plate 25 having a knob 26 by which it may be manipulated may apply pressure to the side of the web opposite the table 20. Secured below the plate 25 is a light spring plate 27 which engages the web to apply the pressure thereto. The plate 25 is provided with a

bent end 28 which may be engaged rearwardly of transverse pins 29, and the forward edge of this plate may then be slipped below the pins 30 so as to hold the plate 25 in place and cause the spring plate to apply pressure to the web.

Referring particularly to FIGS. 2 and 4, the take-up roll or drum 23 comprises two parts, one of these parts including the hub 32 having a flange 33 at one end thereof. The peripheral surface of this hub is fluted or corrugated as shown at 34 and a shaft 35 is secured rigidly to the hub and a pinion 36 is secured to this shaft.

The other portion of the take-up drum comprises a flange 37 carried by a sleeve 38 which is slidably received upon the shaft 35 and held in position by a spacer member 39 secured to the hub 32. A pin 40 projects from the flange 37 and extends within one of the flutes or corrugations 34 of the hub member 32, as shown more particularly in FIG. 2.

The shaft 35 is rotatably mounted in open-ended slots 41 in the legs 42 of a U-shaped member, the light portion 43 of which is secured to the lower bent end 45 of the closure member 46. A pivot rod 47 extends through the legs 42 to pivot this structure to the side frames 11 and 12 so that the closure member together with the take-up roll may swing from the open position shown in FIG. 3 to the closed position shown in FIG. 2.

With the above construction it will be seen that the shaft 35 may be readily removed from the slots 41 when the parts are in the position shown in FIG. 3, and the flange 37 carrying the pin 40 may be slipped from the shaft 35, thus permitting the windings of the web upon the drum 32 to be pulled off in an axial direction. Also the end of the web may be placed under the pin 40, as shown in FIG. 2, and when the drum is rotated in a counterclockwise direction, as shown in this figure, the web will be wound up upon the hub 32. During operation of the device the flange 37 and pin 40 will be held in place by the arm 42 which is disposed on the outer side of the sleeve 38 to which the flange is secured. The closure member 46 may be provided with spaced tabs or ears 50 by which it may be opened and closed and which also serve as supports for the detached labels 15^a, as shown in FIG. 2.

The teeth of the pinion 36 which is secured upon the shaft 35 of the take-up roll are, when the parts are in the closed position shown in FIG. 2, adapted to mesh with those of a driving gear 51 mounted upon a shaft 52 driven through suitable reduction gearing (not shown) by a motor 53 supported on the side standard 12. Suitable conducting wires 54 lead from the motor to a source of electric current, and current from this source is also supplied to the heating element 24. A switch 55 may be provided to control the current to the heating element and the current to the motor is also controlled by a switch (not shown). A rheostat or resistance element may be mounted in the motor circuit which may be adjusted by the knob 56 (FIG. 1), and the speed of the motor may be controlled as shown in the wire diagram of FIG. 6 by the knob 56. A signal light 57 may be provided to show when the heating element is energized.

As shown in FIG. 6, the motor 53 is energized by the conductors 58 and 59 leading to a suitable source of electric current, the wire 58 leading directly to the motor and the conductor 59 leading through the adjustable rheostat 60, conductor 61, manually operated switch 62 and thence to the motor. If desired, a foot pedal switch 63 may also be employed to operate the motor, this switch being normally held in open position by the spring 64. The current is supplied to the electric heat element 24 by the wires 65 and 66, the latter being controlled by the switch 55. The pilot light 57 is mounted in parallel with the heating element so that it will be energized when the switch 55 is closed.

The motor operates to rotate the driving gear 51 in a clockwise direction, as shown in FIG. 2, so as to rotate

the pinion 36 and the take-up roll 23 in a counterclockwise direction. In this event it will be seen that the torque supplied by the gear 51 will tend to hold these two gears in engagement and the closure member 46 in closed position shown in FIG. 2 as the direction of the torque applied to the gear 36 will tend to move to legs 42 which support the take-up roll in a counterclockwise direction. A stop pin 44 is provided on the wall 12 of the casing to engage one of the legs 42 when the gears 36 and 51 are in proper mesh and prevent binding thereof.

When the closure member is swung to open position, as shown in FIG. 3, the end of the web may be readily inserted between the pin 40 and the drum member 32. The closure member may be then swung rearwardly to the position shown in FIG. 3. Upon operation of the motor the take-up roll will be rotated and the web will be wound up upon this roll, as shown in FIG. 2. When it is desired to empty the take-up roll, it is removed from the legs 42 when the parts are in position shown in FIG. 3, and the portion of the roll or drum comprising the flange 37 and pin 40 is detached by an axial movement, the pin slipping freely from its engagement with the hub. The roll of web may then be drawn axially from the drum 33 and cut off for disposal. The remaining end is then placed upon the drum 32, the flange 37 and pin 40 replaced in position, and the take-up spool mounted in the open-ended slots 41 of the legs 42 and, when the closure member 46 is swung to the position shown in FIG. 2, the parts are ready for a further operation.

As previously stated, as the web builds up upon the takeup roll 23, there would be a tendency for the feed of the labels to speed up. This, however, can be corrected by reducing the speed of the motor through operation of the rheostat 60 by the control knob 56.

In FIGS. 7, 8 and 9 of the drawings I have shown a construction of slightly modified form and one in which the takeup roll is driven through a manually operated oscillatable lever instead of by a motor. Generally the operation of this device is similar to that just described. A handle lever 70 is mounted on the frame to oscillate about the shaft 71 of a driving gear 72. This lever will as is usual, have a one-way connection with the shaft 71 of the usual form (not shown so that upon oscillation of the lever, the shaft 71 with the drive gear 72 will be intermittently rotated in a clockwise direction. The drive gear 72 meshes with a pinion 73 on a take-up roll of slightly different construction from that previously described.

As shown in FIG. 8, this take-up roll comprises a shaft 74 to which is secured a drum or spool 75 having a flange 76. A flange member 78 is provided with an opening 79 slidably received on the shaft 74, and this flange carries an axially directed pin 80 adapted to lie opposite a flattened or cut-away portion 81 on the exterior surface of the otherwise cylindrical drum 75, as shown in FIG. 7. Upon the flange disk 78 may be mounted spring members 81^a adapted to engage to engage the shaft 74 and releasably hold the flange member 78 on this shaft.

The shaft 74 of the take-up roll is received in the open-ended slots of the legs 42 of the U-shaped member attached to the closure 46 as previously described so that the take-up roll may be swung from the position shown in full lines in FIG. 7 to that shown in dotted lines. A spring 82 may be connected to the hub of the gear 72 to return the handle, upon its release, to the position shown in FIG. 7 against the stop 83.

In this case a presser member 84 is mounted above the web to rest thereon, this member being provided with a weight 85 which will be of such character as to apply proper pressure to the web.

It will be apparent that in this construction rotation of the driving gear 72 in a clockwise direction, which is the direction to feed the web, will exert a driving torque upon the pinion 73 in such a direction as to maintain the teeth of the pinion in mesh with those of the gear and

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to maintain the closure member 46 in position, shown in FIG. 7, as has been previously described in connection with the form of my invention shown in FIGS. 1 to 5.

When it is desired to operate the machine, the take-up roll is swung outwardly to the dotted-line position shown in FIG. 7 and the end of the web slipped under the pin 80 between it and the flat surface 81. The take-up roll is then restored to the full-line position shown in FIG. 7 so that the pinion 73 meshes with the driving gear 72. Upon movement of the lever 70 in a clockwise direction, the take-up roll will be moved in a counterclockwise direction, thus causing the end of the web below the pin 80 to be bound between the latter and the surface of the drum, and thus drawn from the supply roll 13 and fed from the machine.

When it is desired to remove the web from the take-up roll, the latter is pulled forwardly to the position shown in FIG. 7 and removed from the supporting legs 42. The disk 78 and pin 80 may then be detached by an axial movement from the shaft 74 and the web withdrawn from the drum 75 and discarded.

If desired, a gear 87 may be rotatably and frictionally mounted on the member 12 of the frame, the teeth of which are in mesh with the driving gear 72 to prevent this gear rotating in a counterclockwise direction when the lever 70 is returned against the stop 83 by its spring 82.

It will be apparent that in either form of the invention when the take-up roll is first actuated, the drum or hub 32 or 75 will be caused to move until the adjacent wall of a corrugation 34 in one case or the flat surface 81 in the other engages the pin on the flange and binds the web between this pin and the drum and also causes the flange and pin to thereafter rotate with the drum.

In FIG. 5 of the drawings I have shown a presser plate 90 of modified form which may be employed instead of plate 25 or plate 84. This plate is similar to the plate 84 except that in place of the weight 85 it is provided with a permanent magnet 91 which is attracted by the metal table 20 and thus caused to apply pressure to the web passing between it and the table 20. In this case the corners of the plate 90 may be cut away, as shown at 92, as the plate is held in place by the magnet 91 and, therefore, does not need to lie below the pins 30.

While I have shown and described some embodiments of my invention, it will be understood that it is not to be limited to all of the details shown, but it capable of modification and variation within the spirit of the invention and within the scope of the claims.

What I claim is:

1. A dispenser for labels comprising an upright supporting frame having forward and rear ends and having means for supporting a supply roll of web upon which the labels are carried, a rotatable take-up roll in the frame forwardly of the supply roll and upon which the web is wound as it is drawn forwardly, and means for driving said take-up roll to draw the web from the supply roll, said driving means comprising a driving gear rotatably supported from the frame and a pinion fixed to the take-up roll, the teeth of which are adapted to mesh with those of the gear, means pivotally mounting the take-up roll on a pivot spaced from its rotary axis for swinging movement of the take-up roll and the pinion fixed thereto toward and away from the driving gear, the take-up roll being swingable away from the driving gear for ready access to the web wound upon it, said pivot being forward of and below the axis of the take-up roll when the latter is in the take-up position thereof, the axis of the driving gear being above and rearwardly of the take-up roll axis, the axis of the driving gear being close to a plane passing through said pivot and the take-up roll axis when the latter is in the take-up position, the last-named plane being inclined to the vertical, the directional thrust of the driving gear tending to hold the pivotally mounted take-up roll in an angular position on

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said pivot in which the pinion in mesh with the driving gear is restrained from separating from the latter when the driving gear is rotated.

2. A dispenser for labels comprising an upright supporting frame having forward and rear ends and having means for supporting a supply roll of web upon which the labels are carried, a rotatable take-up roll in the frame forwardly of the supply roll and upon which the web is wound to draw the web from the supply roll, means for driving the take-up roll comprising a driving gear rotatably supported from the frame and a pinion fixed to the take-up roll, the teeth of which are adapted to mesh with those of the gear, means pivotally mounting the take-up roll on a pivot spaced from its rotary axis for swinging movement of the take-up roll and the pinion fixed thereto toward and away from the driving gear, the take-up roll being swingable away from the driving gear for ready access to the web wound upon it, said pivot being forward of and below the axis of the take-up roll when the latter is in the take-up position thereof, the axis of the driving gear being above and rearwardly of the take-up roll axis, the axis of the driving gear being close to a plane passing through said pivot and the take-up roll axis when the latter is in the take-up position, the last-named plane being inclined to the vertical, the directional thrust of the driving gear tending to hold the pivotally mounted take-up roll in an angular position on said pivot in which the pinion, in mesh with the driving gear, is restrained from separating from the latter when the driving gear is rotated, and means to limit angular swinging movement of the take-up roll on said pivot in a direction toward the driving gear to inhibit binding of the latter with the pinion.

3. A dispenser for labels comprising an upright supporting frame having forward and rear ends and having means for supporting a supply roll of web upon which the labels are carried, a closure member pivoted on the frame to close an opening provided by spaced side walls of the frame, said closure member being located at the front end of the frame, a take-up roll forwardly of the supply roll and rotatably mounted on the inner side of said closure member, said take-up roll being provided to draw the web forwardly from the supply roll and to wind the web thereon, means for driving said take-up roll comprising a driving gear rotatably supported from the frame and a pinion fixed to the take-up roll, the teeth of which are adapted to mesh with those of the gear, the closure member being swingable on a pivot supported from the frame so that the closure member may be swung to open position to move said take-up roll to an angular position for ready access to the web on the last-mentioned roll, thereby moving said pinion away from the driving gear, said pivot being forward of and below the axis of the take-up roll when the latter is in the take-up position thereof, the axis of the driving gear being above and rearwardly of the take-up roll axis, the axis of the driving gear being close to a plane passing through said pivot and the take-up roll axis when the latter is in the take-up position, the last-named plane being inclined to the vertical, the directional thrust of the driving gear tending to hold the closure member closed and the pinion, in mesh with the driving gear when the last-mentioned member is closed, restrained from separating from the driving gear when the latter is rotated, and means to limit angular swinging movement of the take-up roll with the closure member and the pinion in a direction toward the driving gear to inhibit binding of the latter with the pinion.

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